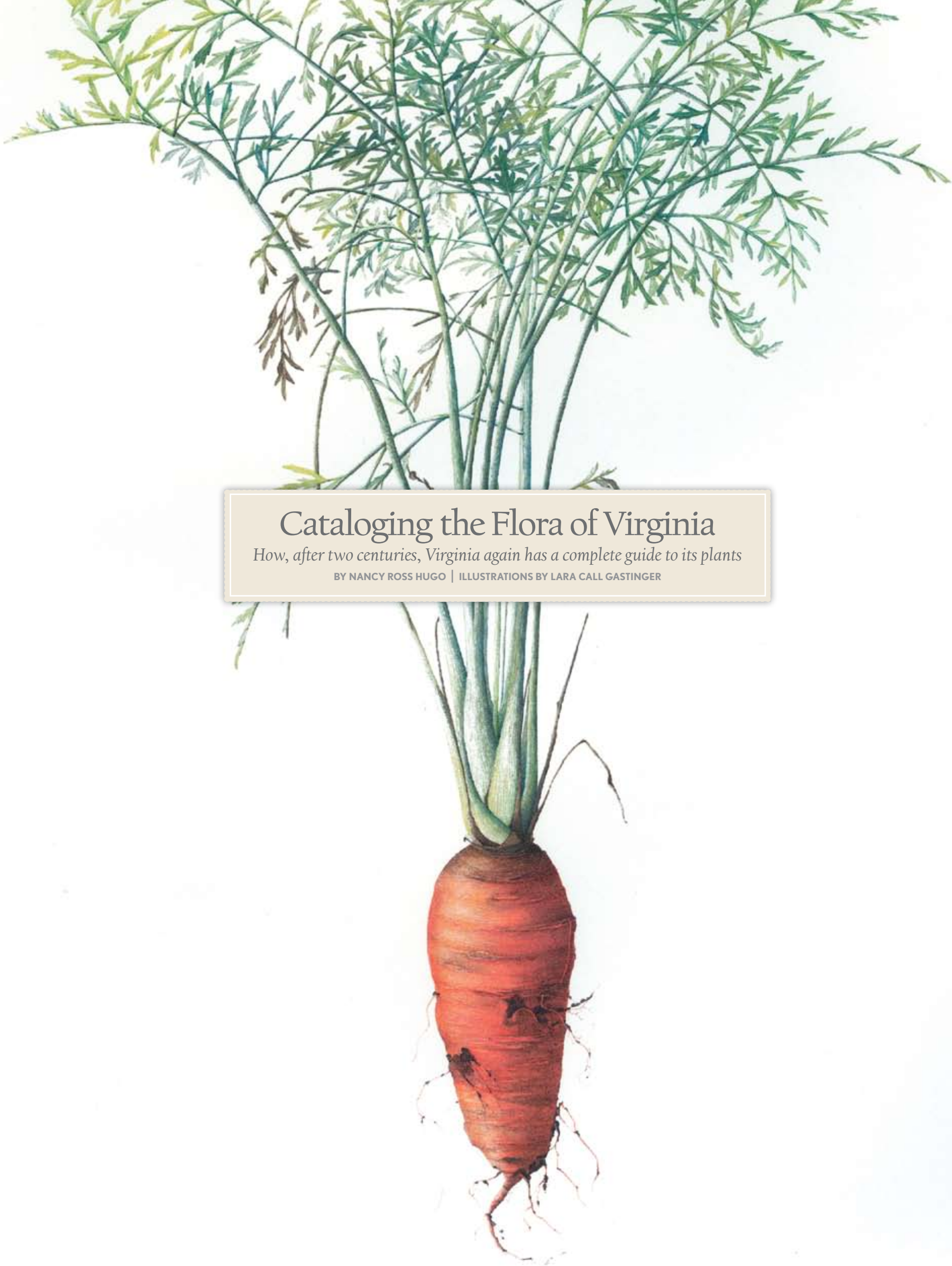


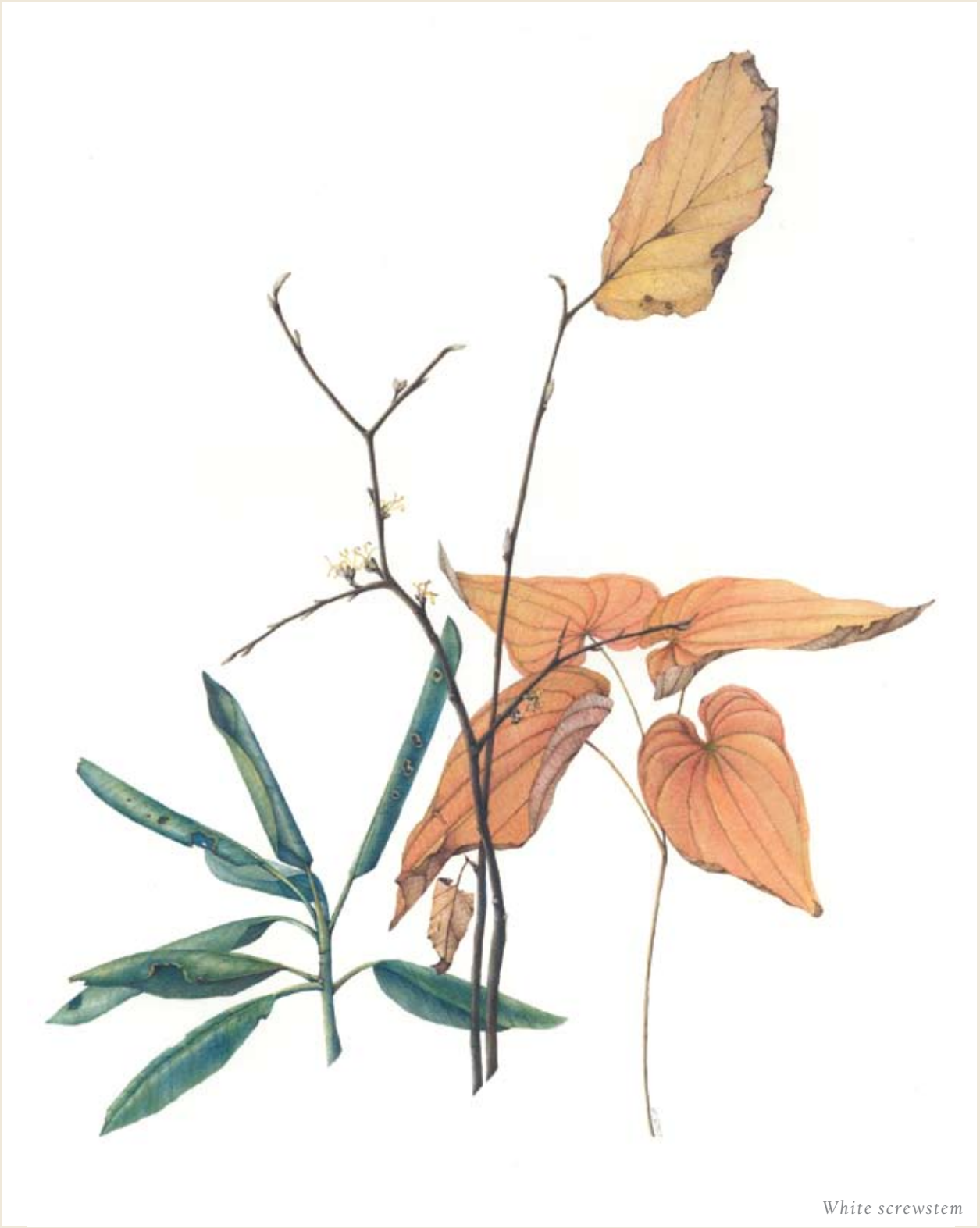
Cataloging the Flora of Virginia

How, after two centuries, Virginia again has a complete guide to its plants

BY NANCY ROSS HUGO | ILLUSTRATIONS BY LARA CALL GASTINGER

Carrot

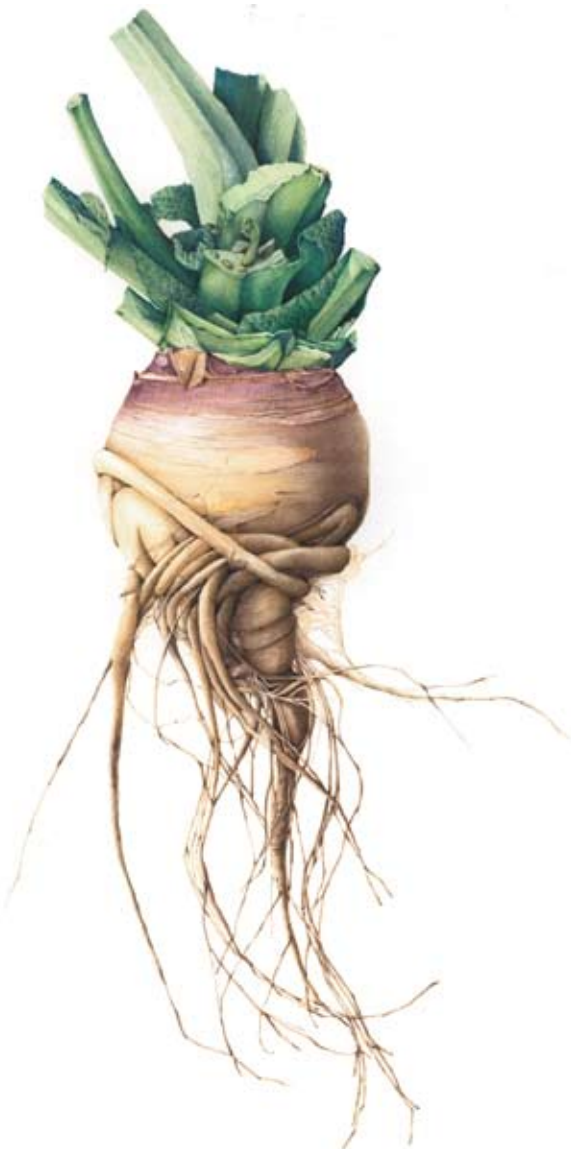
Flora of Virginia, **an illustrated compendium of Virginia's nearly 4,000 plants, is well under way. Remarkably, the state has not had a *Flora* since Colonial times. Thanks to the efforts of an energetic group of naturalists, by 2011 we'll have a Virginia-specific resource.**



White screwstem

"Next to having my daughter, it was the most exciting day of my life." That's Nicky Staunton, amateur naturalist, describing, only half in jest, the day she found the tiny plant called white screwstem at False Cape State Park.

It's a shame the plant doesn't have a more impressive name, because the plant Staunton had found turned out to be a rare one—a plant for which there had been no recorded sighting in Virginia since the 1700s. Few amateurs have experiences like Staunton's (and Staunton is an experienced amateur), but her discovery resonates with every plant lover who has ever wondered, "What's that?" For Staunton, trying to identify plants she doesn't recognize is great fun. "I enjoy finding plants I've not seen before and poring over books to come up with an identification," she says, describing days like the one when she stumbled across the white screwstem. "I was hiking with a group of friends on one of Vickie Schufer's wild food walks," Staunton explains. "There were 17 of us, and we had just come to a crossroads when I looked down and saw this strange little stick plant, not much bigger than a pine needle.



Rutabaga

"It was so tiny," she continues, "only about one-and-a-half inches tall, but it had a bud. It reminded me of *draba*. You know *draba*? It's a little tiny cress." But neither Staunton nor any of her 16 friends, who crowded around the plant trying to identify it, was sure of the I.D., so Staunton photographed the plant and continued her research at home. She and Elaine Haug, a friend who shared her curiosity about the plant, "kept talking back and forth." "Elaine said it had to be *draba*, but I wasn't satisfied with *draba*, because there were no visible leaves other than the tiny opposite ones on the stem, and it just would not match for me."

Staunton looked first in field guides like *Newcomb's Wildflower Guide* and Peterson's *A Field Guide to Wildflowers*. No luck. Then she went to more professional guides to plants. She looked in Britton & Brown's *Illustrated Flora*, in *Herbaceous Plants of Maryland*, in the *Flora of West Virginia* and in Gleason and Cronquist's *Manual of the Vascular Plants of the Northeastern United States and Adjacent Canada*—in none of these did she find the tiny plant she had seen at False Cape State Park. Finally it occurred to her that, since False Cape was so close to North Carolina, she should be looking in the *Manual of Vascular Flora of the Carolinas*—and there is where she found it, a plant with a description that sounded just like the plant she had spotted at False Cape. Staunton was convinced the plant she had found was not a cress (*draba*) at all but rather a rare plant called *Bartonia verna*, or white screwstem.

"Reading the descriptions and trying to understand them—or looking for a drawing that will confirm what I read—that's what I enjoy about it," says Staunton, describing the pleasure of puzzling through a plant mystery. But because she was an amateur, Staunton still wasn't sure of her I.D., so she drew a picture of her mystery plant and published it in the newsletter of the Virginia Native Plant Society. Almost immediately, she got a call from Allen Belden, botanist with the Virginia Natural Heritage Program, confirming her I.D. The rest is plant history: Nicky Staunton, amateur naturalist, had made only the second recorded sighting of *Bartonia verna* in Virginia since the botanist Friedrich Pursh had reported seeing it in the 1700s. The discovery was written up in *Castanea*, the journal of the Southern Appalachian Botanical Society, and now Nicky Staunton's name is right up there with the names of other distinguished botanists who have discovered rare plants in Virginia. "It's so democratic of them to put a novice's name in there!" she says.

It's unlikely many amateur naturalists will have experiences like Staunton's, but because of the efforts of Staunton and others, they are likely to find their efforts to identify unusual—and even common—plants easier in the near future. To naturalists who have had to rummage through stacks of reference books to find the Virginia plants they were looking for, it has always been a disgrace—not to mention a hindrance—that Virginia had no comprehensive manual of its native and naturalized plants. "All of the surrounding states have them, and some regional guides cover Virginia, but Virginia hasn't had a *Flora* [comprehensive plant manual] since 1762!" says Staunton. Ever since Colonial times, Virginia has been rich both in botanical diversity and botanists, but not since 1762, when the Dutch botanist Gronovius published Virginia naturalist John Clayton's descriptions of Virginia plants, has anyone succeeded in pulling together a comprehensive guide to Virginia plants. The history of impediments to such a volume has included herbarium specimens and manuscript notes lost to fire (even, in one case, to arson), the premature death of promising botanists (even, in one case, a homicide), professional rivalries, administrative inertia and, as always, the perennial project-killer, lack of funding.

How the *Flora of Virginia* Project overcame obstacles that have stalled or killed previous efforts to create a complete guide to Virginia plants is a topic that deserves more than one bullet point, but a prominent one should be "people power." In a confluence of possibilities as impressive as the perfect storm, an extraordinary combination of people seems to have come together in the early 21st century to create what no one in the previous two centuries of Virginia's recorded history could. Scheduled for publication by the University of Virginia Press in 2011, the *Flora of Virginia* will include descriptions of Virginia's 3,800 native and naturalized plants and illustrations of 1,500 of them. (Phase II of the Project will complete the remaining illustrations.) The book will have the heft of an unabridged dictionary and the authority of a university don, as well as an infusion of the personalities and passions of the people who made it happen.

One of them is Lara Call Gastinger. At 30, Gastinger is not the wizened graybeard one expects to find associated with such a project—she's an attractive brunette with the gentle demeanor of a young mother. Gastinger is the botanical illustrator providing most of the illustrations for the new *Flora*. So far, she's done 600, each of which takes two to six hours to complete. She's also an accomplished watercolorist whose botanical art has appeared in Virginia galleries, and her work will be included in the Royal Horticulture Society's garden show in London in 2007. Most people who see her work are startled by its precision and accuracy—some of her watercolor paintings take 100 hours.

Like Nicky Staunton, Gastinger has a passion for plants, but for Gastinger this wasn't always so. She was a teenager when she went on her first plant walk—a field sketching class sponsored by the National Wildlife Federation. "It was something my parents dragged me along on, and it opened my eyes," Gastinger recalls. "Even though it seems like teenagers don't care, that's a pretty impressionable time. I'd never seen a nature field sketchbook before." Gastinger continued to attend the National Wildlife Federation's environmental summits, and "took lots of science and plant classes" when she attended the University of Virginia. Inspired by a botany professor, she earned a master's in plant ecology from Virginia Tech, and then took classes in botanical art. All the while she struggled to find a way to combine her artistic and scientific interests. Then she heard that Chris Ludwig, whom she'd met on a nature walk at Wintergreen, was looking for an illustrator for the *Flora of Virginia* Project. "I contacted him," she says simply, and they've been working together ever since.

Gastinger has now spent as much time studying plants and plant specimens as most botany professors, and it shows in the details of her work—hickory nuts so realistically rendered they seem to jump off the page, carrot tops so precise not a single cut of their filigreed leaves is unrepresented, kale leaves so crisp they appear freshly picked. Gastinger paints many of the vegetables she and her husband, a landscape architect, grow behind their Charlottesville home (a rutabaga with a twisted root she liked wound up in one of her paintings—and on her business card).

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Vegetables, nuts and native plants are, in fact, among the subjects Gastinger likes best to paint. "I don't paint the flower shop staples—like orchids and roses, irises and tulips. Native plants have always been more appealing to me. I like the natural structure of plants and the way they change over time, how plants decay and how their roots twist."

orchids and roses, irises and tulips. Native plants have always been more appealing to me. I like the natural structure of plants and the way they change over time, how plants decay and how their roots twist. People give me specimens to paint, like a dried up leaf or an opening milkweed capsule, and every time I walk, I see something I want to paint. I walk outside and I feel there's not enough time to paint all I want to paint. "

One of Gastinger's all-time-favorite projects involved a commission to document, on a weekly basis, the "plant happenings" on a client's 20-acre property in Ivy. "That was a *great* project," says Gastinger, who went out in all weathers to observe and paint not just the wildflowers and weeds on the property but things like emerging mushrooms, lichens and mosses as well. Anyone who has seen copies of pages from that journal envies its owner the privilege of getting to see his property through Gastinger's eyes, but although they will be more scientifically and less impressionistically rendered, soon enough (2011) every plant lover in Virginia will get to see thousands of Virginia plants through Gastinger's eyes, because they will appear in the *Flora of Virginia*.

Other forces behind the *Flora of Virginia* Project include Marion Lobstein, botany professor at Northern Virginia Community College, who refused to let the idea die, and Alan Weakley, botanist and co-author of the *Flora*, who recently found an entirely new aster in North Carolina. That find made national news, partly because it was botanically significant and partly because it wouldn't have happened if a 2-year-old hadn't needed a nap. Weakley and his wife were hiking when their daughter, Rhiannon, began exhibiting the behavior of a child in dire need of a nap. They stopped so Rhiannon could rest, started looking around and discovered *Symphyotrichum rhiannon*—a new aster species that has been named for the Weakleys' daughter. Stories like that serve as reminders that books like the *Flora of Virginia* don't emerge full-blown from the stroke of a mastermind, but rather evolve incrementally from the cumulative work, the discoveries and the passions of real people.

No one's passions have influenced the Project more forcefully than those of the "plant person" most intimately involved in the Project, Chris Ludwig. Executive Director of the *Flora of Virginia* Project and co-author of the *Flora*, Ludwig, who also serves as chief botanist at the Virginia Department of Conservation and Recreation's Division of Natural Heritage, still has the look of the boy birder he once was.

By the time he was 21, Ludwig had "pretty much learned" all the birds in his home state of Maryland. "I was into birding pretty intensely," he explains. "It was the typical unhappy childhood thing—escape into the woods." But during his fourth year of college, Ludwig was given two things that changed his life—a copy of *Newcomb's Guide to Wildflowers* and an opportunity to participate in a plant project that involved listing when certain plants in Howard County, Maryland, bloomed. "That inspired me to want to find all the plants in the county," he explains. "Birds are good, but there are a lot of birders and lots of them know all the birds. With plants, there are still a lot to discover, and you can find something new in your own backyard." Soon Ludwig was experiencing what he says many birders-turned-plant people experience: He didn't know whether to look up (at the birds) or down (at the plants). "I discovered I liked looking down better. I still use my ears to bird, but I usually keep my eyes on the ground."

Ludwig's path to becoming a botanist was not entirely straight—after majoring in biology at Maryland's Frostburg State, he veered back into ornithology. "I went to do a masters at Arizona. I lasted a week," he says. "I had a love interest back in Maryland. I just wasn't ready." He occasionally took jobs not because they were what he wanted to do but because they were physically close to what he wanted to do. "I went to work at the Maryland Natural Heritage program as a data manager, because I loved plants and couldn't be the botanist because they already had one." Eventually, though, not only was his resume filling up with jobs like consulting ornithologist with the U.S. Fish and Wildlife Service and botanist/protection planner with the Maryland Natural Heritage Program, but his reputation as a botanist was also growing. "I did all I could to learn by reading and getting out a lot. I'd go out looking for plants for the pure love of it," he says. In 1988 Ludwig joined the state's Natural Heritage Program as the staff botanist, and he has served as Chief Biologist there since 1998.

Ludwig's credentials as a "plant person" extend even to the experiences he cultivates at home. Ludwig lives on 10 acres in Hanover County, a property on which he has identified over 380 species of plants. He encourages native wildflowers to grow in the meadows between his home and a nearby woodland, and he sometimes invites guests to see how many plants they can identify in his yard. One recent such challenge to group of native plant enthusiasts yielded 104 plant species identified in about an hour. Ludwig also uses most any trip as an opportunity for botanizing, and anyone carpooling with him can expect detours to, among other places, power easements where a surprising number of unusual plants grow. Along an unpromising stretch of roadway in Culpeper County, Ludwig once stopped to show his passengers a power line easement where grew, among other things, meadow parsnip, downy phlox, pasture rose, curly-heads, hoary puccoon, Mead's sedge, Carolina wood vetch, blue-eyed grass, narrow leaved mint and whorled rosin weed.

"Do you know ALL the plants?" a person who has never seen him stumped can't help but ask. "At what level?" he answers. "I know when I don't know something, and that's once or twice a day at least. I may know the genus but not the species." But that's too modest. When pressed, Ludwig will admit, "I sort of know most of 'em." And how many plants would that be? There are about 4,000 plants to know in Virginia (as opposed to only about 400 birds), so knowing "most of 'em" is no small accomplishment. Small wonder that it is Ludwig (with Alan Weakley) who is writing or overseeing the writing of all the plant descriptions that will be included in the *Flora of Virginia*.

When the *Flora of Virginia* is finally published by the UVA Press in 2011, it will include the contributions of hundreds of botanists, the illustrations of a fine artist, and the blood, sweat and tears of dozens of volunteers and benefactors who have contributed time, money and expertise to the Project. But one wonders, when a young naturalist or budding botanist pulls it off the library shelf, if he or she will know just how much personal passion went into its creation. Such books tend to look computer-generated, but this one was carefully crafted by human beings who spent a large part of their personal and professional lives giving birth to it.

Why Virginia Needs Its Own Plant Guide

Virginia plants are included in many amateur field guides and in professional manuals covering the plants of other regions, so why does Virginia need its own comprehensive plant manual?

Johnny Townsend, staff biologist with the Virginia Department of Conservation and Recreation's Division of Natural Heritage and co-author of the *Flora of Virginia*, can cite lots of reasons, but among them are these: Many existing manuals and field guides are out of date, and not only do they fail to include many species recently discovered in Virginia, but they also include mistakes that have been passed along from edition to edition. A modern *Flora* will bring many plant names up to date—plant names change faster than the average naturalist can learn them—and incorporate new information about plant identities and relationships revealed by genetic research.

According to Townsend, botanists working on the modern *Flora of Virginia* (he is one of them) will actually re-measure and re-describe all the 3,800 plants included in the new *Flora*, a monumental undertaking when you realize that, in order to describe a single plant accurately, one might need to look at botanical specimens from herbaria across the state. Having up-to-date descriptions of Virginia plants and their habitats will, according to Townsend, also be a significant help to naturalists in the field, because descriptions in current field guides and manuals are not Virginia-specific. "Peculiarities of habitat can change from state to state," argues Townsend, noting that in South Carolina, wintergreen (*Galtheria procumbens*) grows only in the mountains, but in Virginia, where it's cooler, wintergreen grows even in the coastal plain.

"Over the range of a species, you can also get gradations in the average size of the plant, peculiarities of form and even growth habit." Saltbush (*Baccharis halimifolia*), for example, is evergreen in much of the southern part of its range, but in Virginia, it loses its leaves in the fall—an important consideration if you happen to be trying to identify it in the winter!

By providing descriptions of plants and their habitats that are Virginia-specific, the new *Flora of Virginia* will make life easier for botanists and amateur naturalists trying to identify plants, because the more precise the description, the easier it is to nail down a plant I.D. Such a guide is also a boon for land planners, ecologists and others who need to know baseline data describing the existing vegetation of a region in order to make informed conservation decisions.—*N.R.H.*